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The Effect of a Weight Training Program
on the
Happiness of Young Women

A thesis submitted to the faculty of the
School of Health, Physical Education and Recreation
University of Nebraska at Omaha

In partial fulfillment of requirements for the degree
Master of Science in the School of
Health, Physical Education and Recreation

Natalie Dowty

University of Nebraska at Omaha
Summer 1992

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THESIS ACCEPTANCE

Accepted for the faculty of the Graduate College, University of Nebraska, in partial fulfillment for the requirements for the degree Master of Science, University of Nebraska at Omaha.

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ABSTRACT

The Effect of a Weight Training Program on the Happiness of Young Women

A thesis submitted in partial fulfillment of
requirements for the degree Master of Science in the
School of Health, Physical Education and Recreation

An increasing body of research indicates that exercise has some positive psychological effects. But few studies focus specifically on weight training as the treatment, or happiness as the dependent variable. Additionally, much research has focused on psychological state changes from immediately before, to immediately following a physical activity. Little has been reported on the relationship between weight training and general happiness over a longer period of time, (i.e. three to four months). The purpose of this study was: (a) to determine the effect of beginning and maintaining a regular weight training program on the happiness of previously sedentary women, (b) to determine the effect of beginning and maintaining a weight training program on the self-percieved health, attraction to physical activity, happiness, self-esteem and life satisfaction of previously sedentary women, and (c) to compare the effectiveness of short answer Likert scale questions on happiness, self-percieved health, attraction to physical activity, self-esteem and life satisfaction to the scores derived from the Psychap Inventory.

This project involved two separate studies. The first

involved a small group of women recruited from the general public, and the second involved a larger sample of women recruited from university health and weight training classes. Approximately one-half of the subjects weight trained for 15 weeks. The other half did not train. A survey consisting of the Psychap Inventory and five Likert scale questions relating to happiness was administered to all subjects before the training began and after the 15 weeks.

Repeated Measures ANOVA and ANCOVA indicated that, in general, the weight training programs did not significantly affect the happiness, self-percieved health, attraction to physical activity, self-esteem or life satisfaction of the women. High correlations between some Psychap Inventory scores and Likert scale items indicated the efficacy of using the Likert scale questions to measure happiness.

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CHAPTER I

INTRODUCTION

An increasing body of research indicates that exercise has some positive psychological effects. Researchers have noted that less anxiety, less depression, more self-confidence, more vigor and better body image are associated with exercise (Dyer & Crouch, 1988; Heaps, 1978; Tucker, 1987; Wilson, Morely & Bird, 1980). Much of the research, however, has focused upon psychological state changes from immediately before, to immediately following a physical activity. Little has been reported on the relationship between beginning and maintaining a weight training program and general happiness over a longer period of time, (i.e. three to four months).

Carter (1977) sought to answer the question, "are people who get regular exercise happier than those who don't?" He used a survey to collect information on the exercise habits and self-perceived happiness of 216 adults. His results indicated that exercise scores correlated positively with "happiness right now" and with global happiness, thus, suggesting a positive relationship between happiness and exercise. However, Carter's study does not address the nature of the relationship between strength training or other specific types of exercise and happiness, nor does his study address which came first, exercise or happiness. Further study in this area is necessary to

determine if beginning and maintaining an exercise program, specifically strength training, impacts personal happiness.

Statement of the Problem

The purpose of this study was to determine the effect of beginning and maintaining a regular weight training program on the happiness of previously sedentary women. Additionally, the study examined the effect of beginning and maintaining a weight training program on the self-percieved health, attraction to physical activity, happiness, self-esteem and life satisfaction of previously sedentary women. Short answer Likert scale questions on happiness, self-percieved health, attraction to physical activity, self-esteem and life satisfaction were compared to the Psychap Inventory scores in order to determine the validity using the shorter Likert scale questions in future studies.

The Samples

This project involved two separate studies. The first involved a small group of women recruited from the general public. This study will henceforth be called the Public Study. The second study involved a larger sample of women recruited from university health and weight training classes, and will henceforth be called the Univeristy Study.

The subjects for the Public Study were 12 females ranging in age from 21 to 30 years, with a mean age of 25.6 years. The subjects were not currently involved in an exercise program. The subjects were not pregnant nor were

they planning pregnancy in the following two years. The subjects had no history of psychological problems. These subjects were randomly placed into exercise and control groups. The exercise group began a strength training program and attended class three times per week, and the control group did not exercise regularly for the duration of the project.

One hundred and sixteen subjects were recruited for the University Study. Of those 76 were included in the study, and 40 were excluded because they did not take the posttest or because they were already involved in a regular weight training or other exercise programs. The subjects ranged in age from 18 to 44 years old, with a mean age of 24.4 years. Forty-one of the subjects were enrolled in a university weight training class, and 35 were enrolled in a non-exercise, university health education class.

Limitations and Assumptions

This study could not control for factors outside of the weight training program which may affect happiness. In addition, the quality and frequency of social interaction could not be controlled in the strength training classes or the health classes. This study could not control for the varying degrees of personal honesty with which the participants answered the questionnaire. Lastly, while all exercising participants followed specific exercise guidelines and were under the supervision of a physical

education instructor, it was not possible to control for the varying degrees of commitment and intensity the participants invested in the training program.

Definition of Terms

For clarity, the following terms are defined:

Conceptual Terms:

Psychap Inventory (PHI) - an instrument to measure personal happiness as well as personality, behavioral and situational attributes associated with happiness (Fordyce, 1986).

Functional Terms:

Happiness - a (long-term) sense of emotional well-being, contentment, and overall satisfaction with life.

Wellbeing - a good or satisfactory condition of existence as perceived by the individual/subject.

Justification

Although a relationship between exercise and positive psychological states and/or personality states has been tentatively established by some researchers, other researchers (Williams & Getty, 1986) have found no appreciable improvements in psychological state with exercise. In addition, discrepancies exist between the effects of various types of physical activities, (aerobic versus anaerobic), as well as among various research findings for specific activities. Much of the research has focused on psychological state changes from immediately

before, to immediately following acute physical activity, as opposed to longer term psychological changes. Similarly, strength training for physical fitness rarely appears in the literature as a treatment in these studies. Given the current popularity of weight lifting for physical fitness, the psychological effects of such programs are relevant. Lastly, the relationship between happiness and exercise has been very rarely investigated. Undertaking research in this area could result in a better understanding of the relationship between exercise and happiness. This could provide health and physical educators with a broader knowledge base and enhance their ability to positively impact their students' and clients' health, fitness and happiness.

CHAPTER II

REVIEW OF LITERATURE

Although reports on exercise and happiness are limited, a considerable amount of research has been done relating exercise to moods and body image. Some areas of this type of research can be assumed to overlap with research on happiness, exercise and weight training. Little has been reported on the psychological effects of weight training. Weight training is the method of physical conditioning that will be the treatment in this study. The specific areas that will be discussed here are:

Happiness/Wellbeing; Exercise, Mood and Happiness; Effects of Strength Training; and The Psychap Inventory.

Happiness/Wellbeing

In 1965, Bradburn and Caplovitz conducted a pilot study of behavior related to mental health. They developed a survey to measure psychological wellbeing using self reports, The survey included the general question, "taking all things together how would you say things are these days? Would you say that you are very happy, pretty happy, or not too happy?" The survey found that happiness was positively correlated with education, negatively correlated with age and uncorrelated with gender. In general, unmarried and unemployed people were unhappier than those who were married and employed.

In interpreting the results, Bradburn and Caplovitz

(1965) pioneered some interesting ways to think about happiness. The researchers saw wellbeing as a function of the relative strength of positive and negative emotions experienced in the recent past. The positive and negative feelings are distinct and independent, so that forces contributing to negative feelings, (i.e., marital stress) do not produce any corresponding decrease in positive feelings, or vice versa. Thus, someone with many negative feelings can be happy if there is a balance of positive feelings in that person's life. The researchers hypothesized that happiness could be predicted by knowing the relative balance of positive and negative emotions.

In a follow up study in 1969, Bradburn tested his model of psychological wellbeing as a function of two independent variables: positive and negative affect. He found that the best predictor of self rated happiness was the difference between the positive and negative affect scores. The greater the difference of the positive over the negative, the higher the self rating of overall happiness. Also in this study, Bradburn (1969) found that self reports are meaningfully correlated with other indicators of wellbeing that are well grounded in empirical research or have strong face validity on the basis of everyday experience.

Before Bradburn, early ideas about happiness, health and wellbeing were recorded by Gumpert (1951) in his book The Anatomy of Happiness. Gumpert used his experience as a

physician, as well as his personal experience to present a chronicle of thoughts and ideas about happiness. He related happiness to the physical activity of hard work and sport. He stated that physical exertion restored the feeling of balanced coordination of all the functions of the mind and body, which are damaged by daily monotony. He also listed some happy rewards of sport: achievement, the satisfaction of mastery, the joy of self-assured movement, the challenge to win, the thrill of risk taking, security in one's ability to endure hardship or pain, training toward a performance, and reaching a difficult goal. More recently, some researchers have explored the relationship between exercise and aspects of psychological wellbeing.

Exercise, Mood and Happiness

Besides Gumpert, Carter (1977), also a physician, conducted a study to discover if people who exercise regularly are happier than those who do not. A questionnaire was given to 216 adults of varied backgrounds and ages. The sample was not randomly selected. The questionnaire asked for information about the participants' exercise habits and included two questions regarding happiness, a general happiness question and a question addressing happiness right now. The exercise responses were quantified using a point system based on cardiovascular benefits. The frequency, distance and duration points were combined to give each participant a monthly score. Carter

found that the exercise scores correlated positively with happiness now ($r=0.215$) and to general happiness ($r=0.266$). In addition, those participants who were very happy exercised more than those who said that they were pretty happy. Those who were pretty happy exercised more than those who said they were not too happy. This study is one of the few studies that addresses exercise and happiness specifically, however, it does not address whether it was happiness or exercise that preceeded the other.

In a study representative of a larger body of research, Bird, Morely and Wilson (1980) attempted to determine the relative effects of different amounts of exercise on the moods of the participants. They recruited 30 males, ages 20 to 45 years, of similar socioeconomic backgrounds and divided them into three groups of 10 marathoners, (six to 20 miles per day each week), 10 joggers, (one to two miles per day each week), and 10 nonexercisers. They administered the Profile of Mood States (POMS) adjective list after the training schedule was well established. They found that the joggers reported better mood states than the nonexercisers and that the marathoners reported better mood states than the joggers. They concluded that the amount of physical activity may play a role in the positive effects of exercise on mental health.

Getty and Williams (1984) compared the effects of aerobic exercise, nonaerobic exercise and no exercise on the

moods and physical fitness of normal and depressed college students. They recruited 430 normal college students enrolled in elective jogging, aerobic dance and recreational games classes that met three times per week. Those who dropped out were used as the control group. They also used 41 depressed college students, who were not taking medication or undergoing psychotherapy, who were enrolled in the same classes as the first group. Both groups were tested before and after the 10 week program. The normal group was tested using the POMS and the Getchell Step Test, while the depressed group took the POMS, and the Zung Self-rating Depression Scale, as well as performing the Getchell Step Test. Getty and Williams found that in both groups the aerobic exercise, which resulted in significant improvement of cardiovascular conditioning, had no more effect on psychological mood than did the recreational, nonaerobic activities or no exercise or activity. These findings are in conflict with the previously mentioned studies. More research in this area is clearly needed.

Effects of Weight Training

Tucker (1987) sought to determine the effect of weight training on the body image of college males and to identify the types of males who would experience the most improvement in body image due to weight training. He used 114 university males enrolled in a beginning weight training class for the experimental group and 127 males enrolled in a

health class for the control group. The Body Cathexis Scale and Tucker's Perceived Somatotype Scale were used to measure body satisfaction, perceived somatotype-self and ideal somatotype at the beginning and end of the 16 week program. Single maximum lifts using free weights were used to determine changes in strength. Tucker reported that participation in the four month program significantly improved body attitudes of the participants. He also noted that some participants were initially weaker than the norm and reported poor body image and/or rated themselves as having a ectomorphic or endomorphic body type. These participants showed more improvement of body image than those who were initially stronger than the norm, who reported good body image and rated themselves as having a mesomorphic body type. Although body image is most likely a component of personal happiness, the magnitude of its contribution is unclear (Tucker, 1987).

In another study, Dyer and Crouch (1988) compared the moods of aerobic dancers, runners, weight lifters, and nonexercising people. Seventy undergraduate students who were enrolled in a jogging-conditioning class, an aerobic dance class, a weight lifting class and a psychology class completed the POMS at the beginning of the programs and at the end of a six week period. The researchers found that the runners had significantly more positive mood profiles than the nonexercising group and "somewhat more" positive

mood profiles than the weight lifters. The weight lifters experienced a greater decrease in anger and confusion than the runners. The authors of this study suggested that exercise, particularly aerobic exercise, helps people to cope with stress, and to have a more positive feeling of wellbeing.

In both the preceding studies, weight training had an effect on psychological indices. Even so, the effect of strength training on personal happiness cannot be derived from these studies.

The Psychap Inventory

Although there are many measures of happiness available today, most of the instruments measure only the affect itself. Few of the instruments measure factors that consistently correlate to and contribute to happiness (e.g., personality characteristics, situational conditions, attitude and value structures, behavioral variables and daily activities, etc.). The Psychap Inventory, (see Addendum), was designed to sample a full range of happiness characteristics (Fordyce, 1986).

The Psychap Inventory (PHI) is intended for general use for adults. It was also more specifically written to serve as a diagnostic and prescriptive tool for use with the "Psychology of Happiness" program (Fordyce, 1981) which is a research developed, self-study course for improving personal happiness. The inventory comes in two sets of highly

correlated, equivalent forms. Each form consists of 80 items, and within each set there are no repeated items. The PHI items consist of forced choice statements, each sampling a characteristic known to distinguish happy from unhappy people. All forms of the PHI produce five scores for interpretation and analysis: Achieved Happiness, Happy Personality, Attitudes and Values, Life Style and the combined or Total Happiness score (Fordyce, 1986).

In over 20 different studies, with short-term intervals ranging from the same testing session to a week interval, interform correlations have ranged from $r=0.86$ to $r=0.95$ ($p < 0.001$). Total score correlations for two to three weeks averaged $r=0.86$, and over a three month period an average of $r=0.74$ was found. When other socioeconomic factors have been eliminated, there appears to be little bias in the PHI regarding sex, age, or race. The collected findings indicate a strong reliable convergence between the PHI and standard measures of happiness (Fordyce, 1986). The PHI was used to measure happiness in this study. In addition, five Likert scale questions which asked the subjects to rate their health, attraction to physical activity, happiness, self-esteem, and life satisfaction were included in the study.

Summary

A review of literature reveals inconsistent information regarding the effect of exercise on moods and a lack of

sufficient research on the long term relationship between exercise and happiness. Similarly, there is insufficient information on the effect of weight training on psychological wellbeing in general, and on happiness specifically. This study intends to determine the effect of beginning and maintaining a strength training program on the happiness of previously sedentary, nonweight training young women. Through this project, the researcher hopes to shed some light on the relationship between strength training and happiness.

CHAPTER III

PROCEDURES

Introduction

The purpose of this study was to determine the effect of beginning and maintaining a regular weight training program on the happiness of previously sedentary young women. Additionally, the study examined the effect of beginning and maintaining a weight training program on the self-percieved health, attractiveness to physical activity, happiness, self-esteem and life satisfaction of previously sedentary women. There were two studies, the Public Study and the University Study.

The subjects for the Public Study were 12 females ranging in age from 21 to 30 years old, with a mean age of 25.6 years. The subjects were not currently involved in an exercise program. These subjects were randomly placed into exercise and control groups.

One hundred and sixteen subjects were recruited for the University Study. Of those 76 were included in the study, and 40 were excluded because either they did not take the posttest or because they were already involved in a regular weight training or other exercise program. The subjects ranged in age from 18 to 44 years old, with a mean age of 24.4 years. Forty-one of the subjects were enrolled in a university weight training class and 35 were enrolled in a non-exercise, university health education class.

All of the Public Study subjects were given the Psychap Inventory (PHI) plus the Likert scale questions during the first class meetings. The exercise groups attended strength training classes three times per week. The control group did not participate in any regular exercise. After 15 weeks, the PHI was readministered as before. Analysis of Covariance and Repeated Measures Analysis of Variance were used to determine if there was a significant difference between the exercise and control groups. These analyses helped reduce the effect of within group variability, providing a strong analysis of the difference between groups.

All of the University Study subjects were given the Psychap Inventory (PHI) plus the Likert scale questions during the first class meetings. The exercise group then attended strength training classes two times per week. The health education group was questioned regarding their activity level. Subjects were excluded from the study if they maintained a regular exercise program. The university control group subjects were not monitored to determine if they remained sedentary. After approximately 15 weeks, the PHI was readministered to both groups. Pretest and post-test results were compared using Analysis of Covariance to determine the significance of the differences between the strength training program participants and the control group.

Preliminary Procedures

Prior to the initiation of this study, Institutional Review Board approval was met, and exercise subjects signed informed consent forms for the exercise portion of the study. The subjects understood that they were free to withdraw at any time from the study without repercussions from the researcher or any other penalty.

Subject Selection

In the Public Study, both the weight training and control groups were participants in another study: "The Effects of Strength Training on the Bone Density of Young Women," concurrently conducted at another midwestern university. The subject selection process for the other study involved distributing flyers and advertisements through hospital and university systems, as well as through community businesses. The subjects were interviewed by phone to determine eligibility. Qualified and interested subjects were randomly assigned to the experimental (exercise) or the control group. The subjects in the bone density study were 35 females ages 20 to 30 years old, who were not currently involved in an exercise program, who had no known psychological problems and who were not pregnant or planning pregnancy in the following two years. The 12 subjects used in the present study were selected because the time period in which they were scheduled to begin their

exercise program fell within the span of this study.

One hundred and sixteen subjects were recruited for the University Study from regularly scheduled weight training and health education classes at a local university. Of the 116, 76 were included in the study, and 40 were excluded because they either did not take the posttest or because they were already involved in a regular weight training or other exercise program. The subjects ranged in age from 18 to 44 years old, with a mean age of 24.4 years. Forty-one of the subjects were enrolled in a university weight training class and 35 were enrolled in a non-exercise, university health education class. Participants in the health education class were questioned regarding their exercise habits. Those indicating on the questionnaire that they exercised regularly were excluded from the study. Participants in the weight training class were asked if the weight training class was new or a continuation of a current weight training program. Those participants responding "continuation" were eliminated from the study.

Pilot Project

A preliminary group of nine experimental and eleven control subjects received the PHI by mail, according to the protocol used for the Public Study control group, listed in the following section. This mailing took place a week before the experimental group began the strength training classes. Of the subjects who received the inventory, four

of the experimental and six of the control group subjects returned the inventories within the one and one-half week period allotted for the return of the inventories. The pilot study results were not included in the data for this study due to the difference in time elapsed between the pretests and posttests of the two groups.

Operational Procedures

Administration of the Inventory

The PHI pretests were administered to both the University Study and Public Study exercise groups, and the University control group during the orientation period, before the exercise groups began the strength training program. Fifteen to twenty minutes were taken during the beginning of the class session or orientation to fill out the inventory. The study was described as a Master's study in exercise psychology. The directions on the front page of the inventory were read aloud. The inventories were collected by the researcher.

Posttests for both studies were administered approximately fifteen weeks into the respective programs, at the beginning of regularly scheduled class or meeting time. Again the directions were read aloud, fifteen to twenty minutes were required to complete the inventory, and the inventories were collected by the researcher. There was an exception in the posttest administration procedure with the Public Study control group. Some subjects were mailed their

posttest inventories according to the pretest mailing procedure that follows because face to face access was difficult.

The PHI pretests were administered to the Public Study control group by mail. Each member of this group received a mailing which included the PHI, instructions, an explanatory letter, a self-addressed stamped envelope, and an answer sheet. The accompanying letter explained that the test would be readministered in 15 weeks, that the final results (individual and group) would be provided to the participant, that all responses were confidential and that the participant should complete the survey and return it within one and one-half weeks. The answer sheets were coded by number. Specific directions for taking the survey were listed on the first page of the packet. The completed surveys were mailed to the researcher.

All answer sheets for both the University and the Public Studies were hand scored using a template provided in the PHI kit. In the Public Study, the individual scores were recorded and the group scores were plotted on a point graph to provide the participants with feedback.

Strength Training Program

In the Public Study, exercising participants attended strength training class three times per week, ideally, Monday, Wednesday and Friday. Make-up classes on Thursdays and Saturdays were also offered. The class lasted

approximately 40 minutes and included approximately five minutes of warm-up at the beginning of class, and five minutes of stretching at the end of the class.

The subjects worked toward lifting the maximum weight they could lift correctly for the last of three sets of six repetitions. The subjects were lifting approximately 70 percent of their one repetition maximum for the first set, 80 percent of their one repetition maximum for the second set and 75 percent of their one repetition maximum for the final set. The subjects attempted six repetitions per set. When a subject achieved a lift with a given weight for three sets of six repetitions, the load was increased by two and one-half to five pounds. Universal weight lifting equipment, with a two and one-half and a five pound free weight adapter, was used. The lifts that were included in the program were the leg extension, leg curl, hip extension and flexion, hip adduction and abduction, trunk extension, and trunk flexion (abdominal crunches). There was an orientation period at the beginning of the program to familiarize the subjects with the weight lifting equipment, safety precautions and lifting techniques.

The class was supervised by a physical education instructor to ensure the subjects' participation and safety. An 80 percent attendance rate was maintained.

In the University Study, exercising participants attended strength training class two times per week. No

make-up classes were offered. The class lasted approximately 50 minutes and included approximately five minutes of warm-up at the beginning of class, and five minutes of stretching at the end of the class.

The subjects worked toward lifting the maximum weight they could lift correctly for the last of two to three sets of eight to twelve repetitions.

The class was supervised by a strength training instructor who provided information regarding proper lifting technique and safety. Participants were penalized for missing more than three classes during the fifteen week period by dropping their grade one level. Attendance and promptness were emphasized.

Analysis of Data

Data was analyzed using Analysis of Covariance (ANCOVA) to determine the significance of the difference, if any, between the posttest scores of the control and exercise groups. There are three prerequisites necessary for the use of ANCOVA: (a) pretest scores may not be affected by the independent variable, (b) pretest scores must be linearly related to the posttest scores, and (c) the relationship of the pretest to the posttest scores must be equal for both the experimental and control groups.

On five occasions the prerequisites for ANCOVA were violated because there was not a linear relationship between the pretest and posttest scores, due in part to the small

sample size. For these tests, Repeated Measures Analysis of Variance (ANOVA) was used to determine the significance of the difference between the posttest scores of the control and exercise groups. Additionally, the five Likert Scale questions were correlated with the Psychap Inventory subscores and total score to determine the relationship between the scores on the longer, multiple item inventories and the shorter Likert items.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to determine the effect of beginning and maintaining a regular strength training program on the happiness and related self-perceptions of previously sedentary, nonweight training young women. The Psychap Inventory (see addendum) was administered to women who participated in one of two studies.

Happiness Scores

The mean pretest and posttest scores for the Public Study are recorded in Table 1. The differences between the pretest and posttest means were very small with the exception of the control result for the PHI Total Happiness score which increased by seven points. In addition, more of the control scores changed in a favorable direction than did the weight training group.

The mean pretest and posttest scores for the University Study are recorded in Table 2. The differences between the pretest and posttest means were very small for both groups. More of the weight training group scores changed in a favorable direction than did the control group scores. The control group appeared to be generally happier and to have a more positive self-evaluation than the weight training group.

Comparison of Exercise and Control Groups - Public Study

Analysis of Covariance (ANCOVA) was used to determine

Table 1

Pretest and Posttest Means and Standard Deviations of Responses of Public Study

Question	<u>Weight</u>		<u>Training</u>		<u>Control</u>		<u>Posttest</u>	
	<u>Pretest</u>	<u>SD</u>	<u>Posttest</u>	<u>SD</u>	<u>Pretest</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
	Mean		Mean		Mean		Mean	
Health	3.40	.55	3.80	.45	3.29	.49	3.14	.38
Physical Activity	5.00	.71	4.80	.45	4.14	.69	3.86	.69
General happiness	5.00	.00	4.80	.45	4.71	.76	4.86	.69
Self-esteem.	4.80	.84	4.60	.90	4.29	1.11	5.00	.58
Life satisfaction	5.00	.71	5.40	.55	4.29	1.25	5.00	.57
Achieved Happiness (PHI)	9.20	2.77	9.00	2.91	7.71	5.46	9.57	4.66
Happy Person ality (PHI)	12.00	4.30	12.80	4.03	12.57	3.41	14.43	2.07
Attitudes/Values (PHI)	13.20	2.68	13.80	2.39	11.00	1.91	12.43	2.82
Life Style (PHI)	12.00	3.39	11.40	2.61	12.00	3.16	13.86	2.61
Total Happiness (PHI)	46.40	10.88	47.00	9.87	43.29	11.54	50.29	8.32

Note. The higher the score, the more favorable the rating.

Table 2

Pretest and Posttest Means and Standard Deviations of Responses of University Study

<u>Pretest</u>	<u>Weight Training</u>		<u>Pretest</u>		<u>Posttest</u>		<u>Control Question</u>	
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>
Health	3.07	.72	3.17	.63	3.20	.68	3.34	.64
Physical Activity	4.93	1.23	5.00	1.07	4.06	1.24	4.14	1.24
General happiness	4.59	1.07	4.83	1.00	5.00	.73	5.20	.58
Self-esteem.	4.40	1.13	4.55	1.08	4.54	.98	4.69	.87
Life satisfaction	4.22	1.17	4.46	1.32	4.71	1.02	4.37	1.35
Achieved Happiness (PHI)	7.90	4.47	8.54	4.08	9.60	4.30	9.97	3.80
Happy Personality (PHI)	13.22	3.85	13.90	4.07	15.26	4.03	15.40	4.12
Attitudes/Values (PHI)	10.56	3.24	10.93	3.06	11.92	3.14	11.83	3.20
Life Style (PHI)	11.49	4.66	11.83	3.75	12.94	3.54	13.26	3.41
Total Happiness (PHI)	42.82	13.17	44.68	12.66	56.54	12.03	56.05	12.28

Note. The higher the score, the more favorable the rating.

the significance of the difference between posttest scores of the control and exercise groups. There are three prerequisites necessary for the use of ANCOVA. On those tests in which the prerequisites were violated, Repeated Measures of Analysis of Variance (ANOVA) was used to determine the difference between the posttests of the control and exercise groups.

In the Public Study, questions 6, 12, 13, 14, and 16 fulfilled the requirements for the use of ANCOVA. Table 3 summarizes the results for these questions. The first question asked "How would you rate your attraction to

Table 3

ANCOVA Results for Public Study

Question	F Value	Significance of F
6. Attraction to physical activity	1.69	.23
12. Achieved Happiness subscore (PHI)	2.51	.15
13. Happy Personality subscore (PHI)	1.81	.21
14. Attitudes and Values subscore (PHI)	.35	.60
16. Total Happiness Score (PHI)	5.90	.04

physical activity?" Responses were recorded from a Likert Scale that designated 1 as "highly attracted" and 6 as "not at all attracted." Analysis compared the mean difference between the posttest scores of the exercise and control groups and found no significance ($F(1,9)=1.69$, $p=.226$).

The Achieved Happiness subscore of the Psychap Inventory was compiled from 16 forced choice responses on the inventory relating to this area. Analysis of Covariance was used to compare the mean difference between the posttest scores of the exercise and control groups. This analysis failed to reach statistical significance ($F(1,9)=2.51$, $p=.148$).

The Happy Personality subscore of the Psychap Inventory was compiled from 24 forced choice responses on the inventory relating to this area. Analysis of Covariance was used to compare the mean difference between the posttest scores of the exercise and control groups. This analysis failed to reach statistical significance ($F(1,9)=1.81$, $p=.211$).

The Attitudes and Values subscore of the Psychap Inventory was compiled from 19 forced choice responses on the inventory relating to this area. Analysis of Covariance was used to compare the mean difference between the posttest scores of the exercise and control groups. This analysis failed to reach statistical significance ($F(1,9)=.35$, $p=.569$).

The Total Happiness score of the Psychap Inventory was compiled from 80 forced choice responses on the inventory and is the sum of the four subscores. Analysis of Covariance was used to compare the mean difference between the posttest scores of the exercise and control groups. This analysis reached statistical significance ($F(1,9)=5.90$, $p<.05$).

In the Public Study, questions 5, 7, 8, 9, and 15 failed to fulfill the requirements for the use of ANCOVA. Repeated Measures ANOVA was used to analyze these questions. The results are summarized in Table 4.

Table 4

Repeated Measures ANOVA Results for Public Study

Question	F Value	Significance of F
5. Describe your health	2.12	.18
7. General happiness	.61	.45
8. Rate your self-esteem	1.99	.19
9. How satisfied are you with your life?	.33	.58
15. Life Style subscore (PHI)	2.05	.18

The first question asked "In general, how would you describe your health?" Responses were recorded from a

Likert Scale that designated 1 as "excellent," 2 as "good," 3 as "fair," and 4 as "poor." Repeated measures ANOVA found no significant difference between the pretest and posttest scores of the control and experimental groups at the .05 level ($F=2.12$, $p=.176$).

Question 7 asked "In general, how would you describe yourself?" Responses were recorded from a Likert Scale that designated 1 as "unhappy" and 6 as "very happy." Repeated measures ANOVA found no significant difference between the pretest and posttest scores of the control and experimental groups at the .05 level ($F=.61$, $p=.454$).

The next question asked "In general, how would you rate your self-esteem?" Responses were recorded from a Likert Scale that designated 1 as "poor" and 6 as "excellent." Repeated measures ANOVA found no significant difference between the pretest and posttest scores of the control and experimental groups at the .05 level ($F=1.99$, $p=.188$).

Question 9 asked "In general, how satisfied are you with your life?" Responses were recorded from a Likert Scale that designated 1 as "very satisfied" and 6 as "not at all satisfied." Repeated measures ANOVA found no significant difference between the pretest and posttest scores of the control and experimental groups at the .05 level ($F=.33$, $p=.576$).

The Life Style subscore of the Psychap Inventory was compiled from 21 forced choice responses on the inventory

relating to this area. Repeated measures ANOVA found no significant difference between the pretest and posttest scores of the control and experimental groups at the .05 level ($F=2.05$, $p=.183$).

Comparison of Exercise and Control Groups - Univerisity Study

In the Univerisity study, all of the research test questions fulfilled the requirements for the use of ANCOVA. Table 5 summarizes the results for these questions. The first question asked "In general, how would you describe your health?" Responses were recorded from a Likert Scale that designated 1 as "excellent," 2 as "good," 3 as "fair," and 4 as "poor." Analysis compared the mean difference between the posttest scores of the exercise and control groups and found no significance ($F(1,73)=.76$, $p=.386$).

The second question asked "How would you rate your attraction to physical activity?" Responses were recorded from a Likert Scale that designated 1 as "highly attracted" and 6 as "not at all attracted." Analysis compared the mean difference between the posttest scores of the exercise and control groups and found no significance ($F(1,73)=1.32$, $p=.254$).

Question 7 asked "In general, how would your describe yourself?" Responses were recorded from a Likert Scale that designated 1 as "unhappy" and 6 as "very happy." Analysis compared the mean difference between the posttest scores of

Table 5

ANCOVA Results for University Study

Question	F Value	Significance of F
5. Describe your health	.76	.39
6. Attraction to physical activity	1.32	.25
7. General happiness	.66	.42
8. Rate your self-esteem	.07	.79
9. How satisfied are you with your life?	3.16	.08
12. Achieved Happiness subscore (PHI)	.16	.69
13. Happy Personality subscore (PHI)	.29	.59
14. Attitudes and Values subscore (PHI)	.06	.81
15. Life Style subscore (PHI)	.42	.52
16. Total Happiness Score (PHI)	.25	.62

the exercise and control groups and found no significance ($F(1,73)=.66, p=.421$).

The next question asked "In general, how would you rate

your self-esteem?" Responses were recorded from a Likert Scale that designated 1 as "poor" and 6 as "excellent." Analysis compared the mean difference between the posttest scores of the exercise and control groups and found no significance ($F(1,73)=.07, p=.791$).

Question 9 asked "In general, how satisfied are you with your life?" Responses were recorded from a Likert Scale that designated 1 as "very satisfied" and 6 as "not at all satisfied." Analysis compared the mean difference between the posttest scores of the exercise and control groups and found no significance ($F(1,73)=3.16, p=.080$).

The PHI subscores were composed of 16 to 24 forced choice responses. The PHI Total Happiness score was compiled from the sum of the subscores. For all scores, Analysis of Covariance was used to compare the mean difference between the posttest scores of the exercise and control groups. In all cases, the analysis failed to reach statistical significance. The results for these scores are as follows: Achieved Happiness ($F(1,73)=.16, p=.687$), Happy Personality ($F(1,73)=.29, p=.594$), Attitudes and Values ($F(1,73)=.06, p=.806$), Life Style ($F(1,73)=.42, p=.517$), and Total Happiness ($F(1,73)=.25, p=.621$).

Correlation of Inventory Scores

In order to determine if the short answer, Likert Scale questions related to the PHI inventory subscores or total score, the results of questions five through nine were

correlated with scores 12 through 16. Questions five through nine, which have been identified previously, required the subject to select one response on a Likert Scale. Scores 12 through 15 required the subject to complete between 19 and 24 items on an inventory. The total score, number 16, is the combination of the subscores, with a total of 80 items. Table 6 shows the results of the correlations.

The self-perceived health, general happiness, self-

Table 6

Correlations Between Likert Scale Questions and PHI Scores
On Posttests For Both Studies

PHI Scores	Q5 Health	Q6 Physical Activity	Q7 General Happiness	Q8 Self Esteem	Q9 Life Sati- sfaction
12. Achieved Happiness subscore	.53 **	.16	.71 **	.49 **	.49 **
13. Happy Personality subscore	.39 **	.31 **	.49 **	.54 **	.42 **
14. Attitudes and Values subscore	.28 **	.07	.42 **	.37 **	.44 **
15. Life Style subscore	.30 **	.19	.56 **	.45 **	.29 **
16. Total Happiness Score	.46 **	.23 *	.66 **	.59 **	.52 **

Note. * - significant at .05 ** - significant at .01

esteem and life satisfaction Likert scores all correlated highly ($p < .01$) with all of the PHI scores. The attraction to physical activity Likert score correlated highly ($p < .01$) with the Happy Personality subscore and moderately ($p < .05$) with the Total Happiness PHI score.

The highest, most note worthy correlations were the general happiness question to the PHI Achieved Happiness subscore and to the PHI Total Happiness score.

Discussion

As evidenced by Table 1 and Table 2, the differences between the pretest and posttest mean scores for the weight training groups for both studies were very small, but generally in the direction of favorable change. The University Study weight training group mean scores all moved in a favorable direction, although not significantly so. For both studies the range of difference between the pretest and posttest Total Happiness score ranged from no change to a 15 point difference (out of 80). Given this information it is possible to speculate that some subjects' happiness were impacted by the weight training while others were not. It is reasonable to attribute this, in part, to differences in personal preference for the activity.

In the Public Study, the control group signed a contract stating that they would not exercise regularly for the duration of the study. These subjects were not in the

habit of regular exercise and were paid to remain sedentary. It is possible that the slight increases in mean scores of the control group were due to a perception by the control participants that they were getting something for nothing. Enhancing this effect was the fact that the control group's lifestyle was rewarded as it was, while the exercise group was required to change their habits to include weight training. It is also plausible to assume that because the sample was very small for this study, the increases were random.

The ANCOVA and Repeated Measures ANOVA for both studies were not significant for all items with the exception of the Total Happiness Score in the Public Study. Because this score was the only significant result in 20 tests, it is probable that the significant result was due to chance. The posttest mean score for the Public Study control group was higher, and thus happier (50.29), than the posttest mean for the experimental group (47.00). If it is assumed that the significant result in this case was not due to chance, the result indicates that not weight training had a significant effect on the happiness of the young women in the Public Study. As mentioned in the previous paragraph, this may have been related to the fact that the control group was paid not to change their behavior and not to exercise. The remaining analyses indicated that the weight training had no effect on the happiness or self perceptions of the young

women in the study.

There are a number of possible reasons why the weight training had no effect on the happiness of the subjects. It is possible that the subjects were not particularly motivated to weight train, (i.e., some students may have been taking the course because it was required for their major), and thus did not sufficiently invest themselves in the program. Also, although American culture seems to place value on fitness and health, it is likely that these women were not socialized to think of weight training as an enjoyable activity. It is possible that for some of the subjects, the benefits of the weight training were not enough to compensate for the hassle and the discomfort of the training itself.

The pretest scores of the women in both studies fell within a range defined as "slightly happy" to "pretty happy" by Fordyce (1986), the author of the PHI. This range straddles the average score according to research by Fordyce. It seems reasonable to speculate that just as the fitness level of a very unfit person would be more profoundly effected by weight training than someone who was already moderately fit, so the amount of increase in happiness due to weight training would be less pronounced if the subjects were already moderately happy. Perhaps if the subjects were unhappy at the beginning of the study, there would be a more dramatic change in happiness due to the

weight training. This possibility merits further research.

The self-perceived health, general happiness, self-esteem and life satisfaction Likert scores all correlated highly ($p < .01$) with all of the PHI scores. The attraction to physical activity Likert score correlated highly ($p < .01$) with the Happy Personality subscore and moderately ($p < .05$) with the Total Happiness PHI score. The strongest of these correlations were the PHI Achieved Happiness subscore (16 items) and the Total Happiness score (80 items) with the General Happiness Question (one item, Likert scale). These results show that in future tests it would be expeditious have subjects complete the shorter Likert scale questions to measure happiness. The General Happiness Question, in particular, could be inserted as a survey item in a variety of studies to collect further information on happiness.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study sought to determine the effect of beginning and maintaining a regular strength training program on the happiness of previously sedentary, non-weight training young women. The Psychap Inventory (PHI) was administered to women who participated in one of two studies.

The Public Study involved 12 female subjects who were not currently involved in an exercise program. These subjects were randomly placed into exercise and control groups. One hundred and sixteen subjects were recruited for the Univeristy Study. Of those, 76 were included in the study, and 40 were excluded because they either did not take the posttest (they dropped the class) or they were already involved in a regular weight training or other exercise program. Forty-one of the subjects were enrolled in a university weight training class and 35 were enrolled in a non-exercise, university health education class. The Public Study subjects weight trained three times per week and the University Study subjects trained twice per week. Both groups were supervised by a physical education instructor. The Psychap Inventory was administered before the groups began training and after fifteen weeks.

Analysis of Covariance was used to determine if the women who participated in the weight training classes had a significantly greater change in happiness than the

control subjects. Some of the tests did not meet the statistical prerequisites for the use of ANCOVA. In those cases, Repeated Measures ANOVA was used. The analysis revealed no significant difference between the posttest scores of the control and weight training groups.

In order to determine if the short answer, Likert Scale questions corresponded to the PHI inventory subscores or to the Total Happiness score, the results of Likert scale questions were correlated with the PHI subscore and total score. The correlations revealed that the self-perceived health, general happiness, self-esteem and life satisfaction Likert scores all correlated highly ($p < .01$) with all of the PHI scores. The attraction to physical activity Likert score correlated highly ($p < .01$) with the Happy Personality subscore and moderately ($p < .05$) with the Total Happiness PHI score. The most note worthy correlations were the general happiness question to the PHI Achieved Happiness subscore ($r = .714$) and the PHI Total Happiness score ($r = .663$). Thus, in future studies it may be possible to have subjects complete the shorter Likert scale questions to measure happiness instead of completing a lengthy inventory.

Conclusions

Within the limitations of this study, it was concluded that beginning and maintaining a regular weight training program:

1. did not significantly increase attraction to

physical activity.

2. did not significantly increase the self-perceived happiness of the young women.

3. did not significantly increase the self-esteem of the young women.

4. did not significantly increase life satisfaction of the young women.

5. did not significantly increase the self-perceived health of the young women.

6. did not significantly increase achieved happiness as defined by the PHI.

7. did not significantly increase happy personality as defined by the PHI.

8. did not significantly increase the happiness attitudes and values as defined by the PHI.

9. did not significantly increase the happiness life style as defined by the PHI.

10. did not significantly increase overall happiness as defined by the PHI.

It was also concluded that in future studies with similar time constraints, the General Happiness question, "In general, how would you describe yourself: unhappy (1) to very happy (6)," may be used to measure happiness because of the high correlations of the PHI Achieved Happiness subscore and the Total Happiness score with the General Happiness question.

Recommendations

1. The same or similar study should be conducted with subjects who are unhappy at the start of the study to determine if weight training would have a more significant impact on the happiness of unhappy subjects than it did on subjects who were already experiencing an average amount of happiness.

2. The same or similar study should be conducted with male sedentary subjects and with older adult subjects to determine if weight training would have a significant impact on their happiness.

3. More studies should be done relating weight training and happiness, especially in light of the number of people using weight training as a component of a regular fitness program. Information as to what type of workout makes people happy (happiest) could have important implications for health club and physical education programming.

4. Studies comparing different types of weight/strength training technique's effect on happiness should be conducted.

5. Future studies interested in happiness should use the General Happiness question to measure achieved happiness and happiness, instead of requiring subjects to fill out more lengthy surveys.

ADDENDUM

THE PSYCHAP INVENTORY

FORM C

DIRECTIONS:

The Psychap Inventory is a questionnaire that gives you the chance to describe yourself and compare your personality to others.

Each item consists of two statements -- a statement marked "A" and a statement marked "B". Read each of the statements and decide which of the two describes you better, then mark your choice on the answer-sheet you've been given. If statement "A" is true or more true of you than statement "B", blacken the "A" answer slot. If statement "B" seems more like you, blacken the "B" answer slot on the answer-sheet. (An example of correct marking is shown below.) DO NOT make answers or marks in this question booklet.

Column Correctly Marked	
a	b
1. <input checked="" type="checkbox"/>	<input type="checkbox"/>
a	b
2. <input type="checkbox"/>	<input checked="" type="checkbox"/>

In most cases, you will find it easy to choose between the two statements. Sometimes, however, you may feel both statements are somewhat true of you (or that neither are). Even still, try and pick between them the one that is more like you more of the time, for it is important to answer every question to get accurate feedback.

Also, the questions are meant to be answered in a general manner -- not just how you feel today.

If you understand these directions, put your name and other information on the answer-sheet, and begin describing yourself starting with item 1.

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Fort Myers, Florida 33907.

1. A. I love meeting new people.
B. I don't particularly love meeting new people.
2. A. I don't often think about my happiness.
B. I often think about my happiness.
3. A. I often suffer from aches, pains, and other physical discomforts.
B. I rarely suffer from aches, pains, and other physical discomforts.
4. A. I like to keep a bit detached and uninvolved.
B. I like to be wrapped up and involved.
5. A. At present, I don't have any really close love relationship.
B. I have a really close love relationship with someone special.
6. A. I feel fulfilled.
B. I feel unfulfilled.
7. A. I tend to persist until I get what I want.
B. I don't persist when I can't get what I want.
8. A. I don't often try new and different activities.
B. I'm often "game" for new and different activities.
9. A. I have a strong feeling of self-respect.
B. I lack a strong feeling of self-respect.
10. A. Among my values, happiness is not all that important.
B. Among my values, happiness is very important.
11. A. My personal life is not going as well as I'd like.
B. My personal life is going real well.
12. A. The future looks very bright to me.
B. The future doesn't look particularly bright or dim to me.
13. A. My health is very good these days.
B. My health isn't too good these days.
14. A. I have a normal amount of activities I enjoy.
B. I have a great variety of activities I enjoy.
15. A. I don't usually have honest, heart-to-heart talks with my friends.
B. I often have honest, heart-to-heart talks with my friends.
16. A. I'm a very efficient and effective person.
B. I'm a fairly efficient and effective person.
17. A. Events usually turn out just as good as I hoped they would.
B. Events don't usually turn out quite as good as I hoped they would.
18. A. I have no things about my personality that bother me.
B. I have a few things about my personality that bother me.
19. A. Prestige and social standing are fairly important to me.
B. Prestige and social standing are not important to me.
20. A. I don't easily overlook my shortcomings.
B. I tend to accept my shortcomings.
21. A. I could honestly rank my life as one of the happiest on record!
B. I couldn't honestly rank my life as one of the happiest on record.

22. A. "Whatever happens is not always for the best."
B. "Whatever happens is for the best".
23. A. I have no bitter feelings about the past.
B. I've got a few bitter feelings about the past.
24. A. I don't feel completely at home in today's society.
B. I feel right at home in today's society.
25. A. My sex life isn't completely satisfying.
B. My sex life is very satisfying.
26. A. I like to spend most of my spare time with others.
B. I like to spend most of my spare time doing my own things.
27. A. I'm not sure what I want from life.
B. I know what I want from life.
28. A. When things get bad, it's hard for me to be optimistic.
B. When things get bad, I'm still able to muster my optimism.
29. A. Success and achievement is the greatest source of happiness.
B. Relationships with others is the greatest source of happiness.
30. A. I often find myself daydreaming.
B. I rarely find myself daydreaming.
31. A. My life isn't overly exciting.
B. I live a very exciting life.
32. A. When I've got troubles, I generally talk them over with someone.
B. When I've got troubles, I generally keep them to myself.
33. A. I'm the type that often worries about how things are going to turn out.
B. I'm the type that rarely worries about how things are going to turn out.
34. A. I am always full of zest and energy.
B. I am not always full of zest and energy.
35. A. I like to look on the bright side of things.
B. I tend to look at things more objectively.
36. A. My parents were very happy people.
B. My parents were somewhat happy.
37. A. I never feel inadequate.
B. I sometimes feel inadequate.
38. A. Many of my ambitions may be too hard to achieve.
B. Most of my ambitions are within my ability to achieve.
39. A. I find it easy to comfort people when they're having problems.
B. I find it a bit difficult to comfort people when they're having problems.
40. A. My life style is pretty typical and normal.
B. My life style is not particularly typical and normal.
41. A. I like to deal with things.
B. I like to deal with people.
42. A. I experience extremely joyful and elated moods every now and then.
B. I experience extremely joyful and elated moods quite often.

- 43. A. I get most of my satisfaction from being with other people.
B. I get most of my satisfaction from other areas.
- 44. A. I've got a lot of worries.
B. I've got few worries.
- 45. A. I have many more happy experiences than unhappy ones.
B. I have a pretty average balance of happy and unhappy experiences.
- 46. A. I'm pretty friendly to people.
B. I'm not friendly to everyone.
- 47. A. I like to attack problems directly.
B. I prefer to avoid problems when possible.
- 48. A. I don't achieve all of the things I want.
B. I achieve most all the things I want.
- 49. A. I spend more than 50% of my day in a happy mood.
B. I spend less than 50% of my day in a happy mood.
- 50. A. My goals are very clear to me.
B. My goals are not completely clear to me.
- 51. A. I've often been hurt by love.
B. I've rarely been hurt by love.
- 52. A. I don't get a great amount of enjoyment from everyday, simple pleasures.
B. I get a lot of pleasure from everyday, simple pleasures.
- 53. A. I'm not content with my role in life.
B. I'm content with my role in life.
- 54. A. It is good to just accept ones' weaknesses and bad points.
B. It is not good to just accept ones' weaknesses and bad points.
- 55. A. I don't always enjoy participating in social activities.
B. I always enjoy participating in social activities.
- 56. A. I feel free to express my feelings.
B. I don't always feel it's appropriate to express my feelings.
- 57. A. I am satisfied with my life.
B. I am not satisfied with my life.
- 58. A. I am a realist.
B. I am an optimist.
- 59. A. I tend to be more of a concerned and worried person.
B. I tend to be more of a carefree person.
- 60. A. I don't think too highly of basic human nature.
B. I think very highly of basic human nature.
- 61. A. I rely on myself to help me through life.
B. I rely on others to get me through life.
- 62. A. People consider me a very happy person.
B. People consider me a normally happy person.
- 63. A. I'm confident in social situations.
B. I'm not always confident in social situations.
- 64. A. My relationship with my loved ones isn't going as well as I'd like.
B. My relationship with my loved ones is going very well.

- 65. A. Most of the things I do are pretty important.
B. Most of the things I do are fairly average.
- 66. A. I sometimes feel lonely and apart.
B. I hardly ever feel lonely and apart.
- 67. A. Happiness is not my most important goal.
B. Happiness is my most important goal.
- 68. A. I'm moderately active.
B. I'm extremely active.
- 69. A. I need to be successful to be happy.
B. I don't need to be successful to be happy.
- 70. A. I prefer to let others lead in groups.
B. I like being a leader in groups.
- 71. A. I'm not a conformist.
B. I'm pretty much a conformist.
- 72. A. I feel very successful.
B. I feel I'm successful as average.
- 73. A. I like myself very much.
B. I like myself O.K.
- 74. A. I try to be pretty candid and frank with people.
B. I try to be tactful with people.
- 75. A. Life doesn't seem too meaningful to me.
B. Life seems full of meaning for me.
- 76. A. I feel I'm much happier than most people.
B. I feel that I'm about as happy as most people.
- 77. A. I find that being open and honest with people solves a lot of problems.
B. I find that being open and honest with people causes a lot of problems.
- 78. A. People tell me I'm very likable.
B. People think I'm average in likability.
- 79. A. My daily tasks are very meaningful.
B. My daily tasks are not unusually meaningful.
- 80. A. I can't imagine being any more pleased with the way my life is going.
B. I can imagine being a bit more pleased with the way my life is going.

PROFILE SHEET FOR THE PSYCHAP INVENTORY

FORM C

NAME _____ DATE TESTED _____

OCCUPATION _____ AGE _____ SEX _____

INVENTORY SCALES	ACHIEVED HAPPINESS	PERSONALITY	ATTITUDES AND VALUES	LIFE STYLE	TOTAL SCORE	STANDARD SCORE
DESCRIPTION of SCORES						
Extremely happy	16 —	24 —	19 —	21 —	80	80
Very happy	15 —	23 —	18 —	20 —	75	75
Pretty happy	14 —	22 —	17 —	19 —	70	70
Mildly happy	13 —	21 —	16 —	18 —	65	65
Slightly happy	12 —	20 —	15 —	17 —	60	60
Neutral	11 —	19 —	14 —	16 —	55	55
Slightly unhappy	10 —	18 —	13 —	15 —	50	50
Mildly unhappy	9 —	17 —	12 —	14 —	45	45
Pretty unhappy	8 —	16 —	11 —	13 —	40	40
Very unhappy	7 —	15 —	10 —	12 —	35	35
	6 —	14 —	9 —	11 —	30	30
	5 —	13 —	8 —	10 —	25	25
	4 —	12 —	7 —	9 —	20	20
	3 —	11 —	6 —	8 —	15	15
	2 —	10 —	5 —	7 —	10	10
	1 —	9 —	4 —	6 —	5	5
	0 —	8 —	3 —	5 —	0	0

Raw Scores _____

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Please circle your responses.

81. In general, how would you describe your health?

1.	2.	3.	4.
excellent	good	fair	poor

82. How would you rate your attraction to physical activity?

1.	2.	3.	4.	5.	6.
highly attracted					not at all attracted

83. In general, how would you describe yourself?

1.	2.	3.	4.	5.	6.
unhappy					very happy

84. In general, how would you rate your self-esteem?

1.	2.	3.	4.	5.	6.
poor					excellent

85. In general, how satisfied are you with your life?

1.	2.	3.	4.	5.	6.
very satisfied					not at all satisfied

REFERENCES

- Bradburn, N. M. and Caplovitz, D. (1965). Reports on Happiness: A Pilot Study of Behavior Related To Mental Health. Chicago: Aldine.
- Bradburn, N. M. (1969). The Structure of Psychological Well-Being. Chicago: Aldine.
- Bird, E., Morely, N., and Wilson, V. (1980). Mood profiles of marathon runners, joggers and non-exercisers. Perceptual and Motor Skills, 50, 117-118.
- Carter, R. (1977). Exercise and happiness. Journal of Sports Medicine, 17, 307-312.
- Dyer, J. and Crouch, G. (1988). Effects of running and other activities on moods. Perception and Motor Skills, 67, 43-50.
- Fordyce, M. (1981). The Psychology of Happiness. Fort Meyers, Florida: Cypress Lake Media.
- Fordyce, M. (1986). The Psychap Inventory: a multi-scale test to measure happiness and its concomitants. Social Indicators Research, 18, 1-33.
- Getty, D. and Williams, J. (1986). Effect of levels of exercise on psychological mood states, physical fitness, and plasma beta-endorphin. Perceptual and Motor Skills, 63, 1099-1105.
- Gumpert, M. (1951). The Anatomy of Happiness. NY, New York: McGraw-Hill Book Company, Inc.

- Heaps, R. (1978). Relating physical and psychological fitness: a psychological point of view. Journal of Sports Medicine, 18, 399-408.
- Tucker, L. (1987). Effect of weight training on body attitudes: who benefits most? Journal of Sports Medicine, 27, 70-78.
- Williams, Jean M. and Getty, Deborah. (1984). The effect of levels of exercise on psychological mood states, physical fitness and plasma beta-endorphins. Perceptual and Motor Skills, 63, 1099-1105.
- Wilson, V. E., Morely, N. C., Bird, E. I. (1980). Mood profiles of marathon runners, joggers and non-exercisers. Perceptual and Motor Skills, 50, 117-118.